

## **Hazardous Waste & Environmental Management (ENV112)**



**Sandia National Laboratories**

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### Introduction

This training applies to all Members of the Workforce at SNL/NM who generate, treat, store, or request disposal of material identified as hazardous waste. ENV112 is required annually. This online training takes approximately 1 hour to complete.

Follow SNL/NM Member of the Workforce (MOW) as he explores hazardous waste management and environmental protection at SNL/NM with Environmental Compliance Coordinator (ECC).



**MOW:** What's the purpose of this course?



**ECC:** The purpose of this course is to familiarize you with:

- Basic environmental protection principles.
- Requirements for hazardous waste management, as stated in ESH100.2.ENV.22, Manage Hazardous Waste at SNL/NM. It is recommended that you read this procedure upon completion of this training.
- Resources for guidance, consultation, and assistance.
- The need to consult with the ECC prior to generating hazardous waste to determine best management practices.

During this training you will have the opportunity to access optional information presented in various formats. You will not be tested on optional information.



The **dollar sign** represents ideas on how to reduce or eliminate hazardous waste—and thus reduce the expense and headaches that go with it.



The **optional information button** represents supplemental information on the topic that precedes it.

If you have questions or don't understand a particular subject area, feel free to contact your ECC.

### Objectives

After successful completion of this training, each individual should be able to:

- Define "waste".
- Identify hazardous waste.
- Define "hazardous waste generator".
- Identify available resources.
- List the responsibilities of a hazardous waste generator.
- Identify the requirements pertaining to waste generation at SNL.
- Identify characteristics of an appropriate container.
- List guidelines for choosing the right container.
- List the elements of proper labeling.
- Identify common waste streams at SNL.
- Identify Satellite Accumulation Point (SAP) management responsibilities.
- Identify responsibilities associated with 90-day Accumulation Areas.
- List the steps to have hazardous waste picked up.
- Complete the necessary forms to have hazardous waste picked up.
- Identify the elements of the SNL/NM Environmental Management System (EMS) as part of the Integrated Safety Management System (ISMS).
- List the five core ISMS work process functions.
- Identify appropriate application of SNL/NM Recycle Program.
- Recognize the function of the Pollution Prevention (P2) Program.

### Resources

#### Corporate Business Rules

- ESH100 Environment, Safety and Health  
<https://my.sandia.gov/authsec/portal/cps/environmentalSafetyHealth/policy?section=all>
- Corporate Procedure: ESH100.2.ENV.22  
<https://my.sandia.gov/authsec/portal/cps/environmentalSafetyHealth/policy/process/procedure?procedure=ESH100.2.ENV.22&section=all>
- CPR 400.1.2 ISMS  
<http://info.sandia.gov/corpdata/eshisms/eh000.htm>

#### SNL Web Sites

- SNL/NM Chemical Information System (CIS)  
<https://webprod.sandia.gov/CIS/restricted/svRegSearchMenu?hdNext=inventory>
- Environmental Compliance Coordinator  
<http://ecc.sandia.gov/>
- Pollution Prevention (P2) Group  
<http://info.sandia.gov/esh/p2/>
- Hazardous Waste Management & Laboratory Services Department  
[http://www-irn.sandia.gov/esh/depts/haz\\_solid\\_waste/](http://www-irn.sandia.gov/esh/depts/haz_solid_waste/)
- Chemical Exchange Program (CEP)  
[http://info.sandia.gov/esh/chem\\_exchange/](http://info.sandia.gov/esh/chem_exchange/)
- Solid Waste Transfer Facility  
[http://info.sandia.gov/esh/solidwaste\\_prgrm/](http://info.sandia.gov/esh/solidwaste_prgrm/)
- Hazardous Waste Management Facility  
[http://info.sandia.gov/esh/hwmf\\_prgrm/](http://info.sandia.gov/esh/hwmf_prgrm/)
- ISMS  
<http://info.sandia.gov/esh/isms/>
- NEPA  
<http://info.sandia.gov/esh/nepa/>
- Waste Management Lessons Learned  
<https://info.sandia.gov/LessonsLearned/>

#### Manuals

- ESH100.2.ENV.22, Manage Hazardous Waste at SNL/NM  
<https://my.sandia.gov/authsec/portal/cps/environmentalSafetyHealth/policy/process/procedure?procedure=ESH100.2.ENV.22>

#### Contacts

- Environmental Compliance Coordinators (ECCs)  
<http://ecc.sandia.gov/>
- Division ES&H Coordinators  
[http://info.sandia.gov/esh/liwg/Names\\_Numbers/diveshcoord.htm](http://info.sandia.gov/esh/liwg/Names_Numbers/diveshcoord.htm)
- Center ES&H Coordinators  
[http://info.sandia.gov/esh/liwg/Names\\_Numbers/ctrcoord.htm](http://info.sandia.gov/esh/liwg/Names_Numbers/ctrcoord.htm)

### Module 1: Identifying Hazardous Waste

After successful completion of this module, you will be able to:

- Define waste.
- Identify hazardous waste.
- Define hazardous waste generator.
- Identify available resources.



**Member of Workforce (MOW):** So, what is hazardous waste?

**Environmental Compliance Coordinator (ECC):** Good Question! Why don't we look at the definition of hazardous waste? But first, let's look at the definition of waste...



#### Waste

**ECC:** A material that is still in use or intended for legitimate use is not waste.

Otherwise...

A material **is** considered waste if it meets **any** of the following criteria:

- It can no longer be used for its **intended** purpose.
- It is **declared** waste.
- It is discarded, abandoned, or there is an **element of discard or abandonment** (even if it is still useable).

#### Hazardous Waste

Regard as hazardous waste **all waste chemicals**, including contained gases, liquids, and solids that are **toxic, ignitable, corrosive**, and/or **reactive**, unless a waste profile has been performed to determine that they are not hazardous.

Examples of hazardous waste include, but are not limited to the following:

- solvents
- acids
- bases
- oxidizers
- flammable or combustible substances
- commercial cleaning products
- paints
- explosives, propellants, pyrotechnics and
- any liquid not specifically allowed in landfills, storm sewers, or sanitary sewers

Regard as hazardous waste the following waste metals and waste contaminated with or containing these metals unless a waste profile or sampling has been performed to determine that they are not hazardous:

- arsenic
- barium
- cadmium
- chromium
- lead
- mercury
- selenium
- silver

Examples of metal-containing hazardous waste include, but are not limited to, the following:

- lithium ion batteries
- nickel/cadmium batteries
- cadmium-plated nuts and bolts
- lead solder
- incandescent light bulbs
- mercury thermostats
- mercury vapor lamps
- film negatives, photographic paper, or spent film processing fluids containing silver

Regard as hazardous waste, any waste items that are contaminated with or contain any of the previously mentioned chemicals or metals, unless a waste profile has been performed to determine that they are not.

Examples include, but are not limited to, the following:

- wipes
- swabs
- debris
- hardware
- equipment
- containers that are not empty in accordance with Corporate Procedure: ESH100.2.ENV.22  
*Manage Hazardous Waste at SNL/NM*



### **Hazardous Waste Lists**

D List – Characteristic Hazardous Wastes

- Characteristics of ignitability, corrosivity, reactivity, toxicity

F List – Non-Specific Sources

- e.g. spent solvents

P List – Acute Hazardous Wastes (Sandia's Chemical Information System (CIS) P List Waste – Instructions for use)

- e.g. methyl isocyanate





### **Empty Container**

- All waste has been removed that can be removed by common practice for that type of container
- **and** (not **or**)
- no more than 3% by weight of the total capacity remains in the container.
- Did not contain acutely hazardous waste (Sandia's Chemical Information System (CIS) P List Waste – Instructions for use)
- Do not have a capacity greater than five gallons
- Have less than one inch of residue remaining for any container up to 110 gallons in size.

Empty containers may be disposed of in the regular trash at SNL/NM.

**Note:** For aerosol cans, make sure the valve is working and when pushed, no more material or gas sprays out before discarding as empty.

Containers with a capacity of greater than 5 gallons should be labeled with the words "Empty Container" and submitted for disposal on a WDDR.

### **Sandia's Chemical Information System (CIS) or P List Waste**

Instructions for Use:

- Scroll down to: P-Waste-Acute Hazardous Waste: P-List Chemicals
- Select site
- Complete applicable fields
- Select Report Type, Group By, and Physical State
- Click "Submit"

If the waste is an **unused commercial chemical product** (for example off-specification or expired), include that information when disposing of it (see your Environmental Compliance Coordinator (ECC) for assistance).

### **Acute Hazardous Waste**



If the waste is an acute hazardous waste, pay close attention to its unique waste management requirements (for example volume limits). See Sandia's Chemical Information System (CIS) P List Waste – Instructions for use.

**ECC:** Acute hazardous waste is very toxic and can be fatal to humans in small amounts. Waste storage volume limits for acute hazardous wastes are discussed in Module 3.

#### **Examples include:**

- arsenic oxide
- methyl isocyanate
- parathion
- sodium cyanide
- thallium oxide



### ***Engineered Unbound Nanoscale Particles***

Waste streams bearing engineered unbound nanoscale particles cannot be thrown into the regular trash. Such waste streams need to be characterized as either hazardous or non-hazardous for their chemical properties. In either case however, a waste label for unbound nanoscale particles should be applied to the container, and the waste should be submitted to the Hazardous Waste Management Facility (HWMF) for disposal. See Corporate Procedure: ESH100.2.ENV.22 *Manage Hazardous Waste at SNL/NM* for more details.

### **Hazardous Waste Generator**

Any member of the workforce or visitor who generates, manages, stores, or requests disposal of a hazardous waste is a generator and is required to take ENV112 annually. Waste generators and their organizations are responsible for the hazardous waste they generate and any byproducts (such as waste spill cleanup material) until the waste is removed from their waste management area.



**ECC:** At SNL/NM, you are a Hazardous Waste Generator if your wastes must be managed in accordance with the requirements of the ESH100.2.ENV.22, *Manage Hazardous Waste at SNL/NM*.

**MOW:** Wait! What if I'm not a chemist, how do I tell if my waste is hazardous?

**ECC:** Well...there are some resources available to you for just that very thing:



Corporate Procedure: ESH100.2.ENV.22, *Manage Hazardous Waste at SNL/NM* gives guidance for making a determination about the hazardous nature of your wastes.

Manufacturers of chemicals are required to provide Material Safety Data Sheets (MSDS) on the chemicals they produce. An MSDS may provide you with the information that you need to determine if the chemical has hazardous characteristics. Remember that a waste profile needs to be developed to determine that a chemical waste is not a hazardous waste. Your ECC can help with a profile.

There are some other resources available to you.

The SNL/NM Chemical Information System (CIS) tracks chemicals or chemical products from purchase to disposal. The CIS can help you locate an MSDS for your chemical waste.

You can also contact your ECC.

**ECC:** Do you know how to contact your ECC? Let's look in the EPR Query!

Each Division at SNL/NM has an ECC, as part of the ES&H Customer Support Team, to provide environmental support and guidance.

Also, Hazardous Waste Management Facility (HWMF) representatives have training and experience to enable them to make the final declaration of waste characterization, based on regulations and information from waste generators.

### Review

**ECC:** Let's review what you've learned in this module...

- If you're using or testing something, it is not a waste.
- Waste chemicals are considered hazardous waste at SNL/NM unless they have been profiled out of the requirements of ESH100.2.ENV.22, Manage Hazardous Waste at SNL/NM.
- Some waste metals are regulated and considered to be hazardous wastes.
- Liquids that are not allowed into the sanitary sewer, storm sewer or landfill are managed as hazardous waste.



**ECC:** Give your ECC a call...they will be happy to assist you with all your waste and environmental management concerns.

### **Module 1 Questions:**

1. Which of the following is a resource that will help you in identifying whether your waste item should be regarded as a hazardous waste or not:
  - a) Corporate Procedure: ESH100.2.ENV.22 Manage Hazardous Waste at SNL/NM.
  - b) Material Safety Data Sheets.
  - c) Your Environmental Compliance Coordinator (ECC).
  - d) All of the above.
2. Hazardous waste at SNL/NM consists of all waste chemicals, including contained gases, liquids and solids that are toxic, ignitable, corrosive, and/or reactive as well as certain metals and items contaminated with or containing any of these materials (that have not been profiled out of ESH100.2.ENV.22).
  - a) True
  - b) False

### Module 1 Answer Key:

1. d
2. a

### Module 2: Responsibilities as a Hazardous Waste Generator

After successful completion of this module, you will be able to:

- List the responsibilities of a Hazardous Waste Generator.
- Identify the requirements pertaining to waste generation at SNL/NM.



**MOW:** OK, as a hazardous waste generator, you say I have certain responsibilities. What are they?

**ECC:** Well, as a hazardous waste generator, you are responsible for knowing the requirements to properly manage any hazardous waste(s) you may generate.

So, let's review your responsibilities as a hazardous waste generator at SNL/NM...



#### Waste Generator Responsibilities

**Per Corporate Procedure: ESH100.2.ENV.22, *Manage Hazardous Waste at SNL/NM***

- **Be** trained for managing your wastes (i.e., completing this course).
- **Establish** a hazardous waste storage location, if needed.
- **Identify and manage** the hazardous waste that you generate.
- **Identify and work with** your ECC for any wastes that have no disposal path (before it is generated).
- **Evaluate methods and take action**, as appropriate, to reduce waste at the source and document these efforts and/or results
- **Assume** that chemical waste is hazardous waste, unless the waste profile tool has been used to determine otherwise.



#### **No Disposal Path**

**MOW:** Whoa . . . "wastes with no disposal path". What does that mean? How will I know that?

**ECC:** Some of the work at SNL/NM may cause you to generate certain types of wastes that have no means for us to dispose of them at the present time. You need special DOE approval prior to generating these types of wastes.

Some examples of the types of wastes that have no disposal path: some radioactive contaminated wastes, certain classified mixed wastes, or high mercury contaminated materials.



#### **Waste Profile**

**MOW:** Wait, what's a waste profile?

**ECC:** A waste profile is a tool used by the ECCs in cooperation with hazardous waste generators to determine if a waste can be managed by alternative disposal methods, such as through the sanitary sewer system or as solid waste. This may allow reductions in handling requirements, waste volume, and cost.

If you would like to have a waste profile performed, contact your ECC for assistance prior to generating the waste.

If waste has been generated, and a waste profile is being completed, then:

- **Place** wastes in containers that are appropriate for the waste.
- **Separate** incompatible wastes.
- **Label** containers with a SNL/NM hazardous waste label.
- **Ensure** containers remain closed at all times, unless adding or removing waste.
- In Satellite Accumulation Point (SAP) waste storage areas, **manage** hazardous waste near the point of generation, keeping waste under your control.
- **Request** disposal of hazardous wastes by completing a Waste Description & Disposal Request (WDDR) form.
- **Describe** your waste management activities to an auditor if requested.



### **Audit Etiquette**

As a waste generator, your storage area may be visited by an auditor from the New Mexico Environment Department, DOE, or other outside agency.

#### **Your Responsibilities During An Audit/Inspection:**

- Ensure that the requirements of the Corporate Procedure: ESH100.2.ENV.22 *Manage Hazardous Waste at SNL/NM*, are being met.
- Check your areas for housekeeping.
- Act as host and present an open cooperative attitude.
- Be honest and knowledgeable.
- Only answer questions that are asked.
- Don't volunteer other information.
- If you don't know an answer, offer to find out or refer to someone who does.
- Don't argue, additional information can be given to the auditor escort at a later time.
- Don't be defensive or take it personally.
- Let the auditor look over a document in silence.
- Realize that interpretations are subjective.
- Findings are not necessarily conclusions.

## **Waste Identification**

**Waste generators shall identify their waste to determine the applicable management and disposal requirements.**

Determine if the subject material meets the definition of *waste*.

Corporate Procedure: ESH100.2.ENV.22, *Manage Hazardous Waste at SNL/NM* provides guidance on making a waste determination.

**ECC:** Remember, at SNL/NM, assume that a waste is hazardous waste unless a waste profile tool or sampling has been used to determine otherwise. Contact your ECC for help.

Also, remember that Hazardous Waste Management Facility (HWMF) representatives have training and experience to enable them to make the final declaration of waste characterization, based on regulations and information from waste generators.



**MOW:** Well, it looks like I'm probably a hazardous waste generator. Where do I go from here?

**ECC:** Very well. First, there are some specific regulations and requirements that govern how you manage a hazardous waste. Let's take a quick look at them...



### ***Federal***

Environmental Protection Agency (EPA)

- Directs the Resource Conservation and Recovery Act (RCRA)



### ***State***

New Mexico Environment Department (NMED)

- Authorized to manage RCRA and State regulations



### ***Agency***

Department of Energy (DOE)

- DOE Orders and Directives included in Sandia's Contract



### ***Sandia National Laboratories***

Corporate Business Rules and Requirements

- ES&H Policy



### ***RCRA***

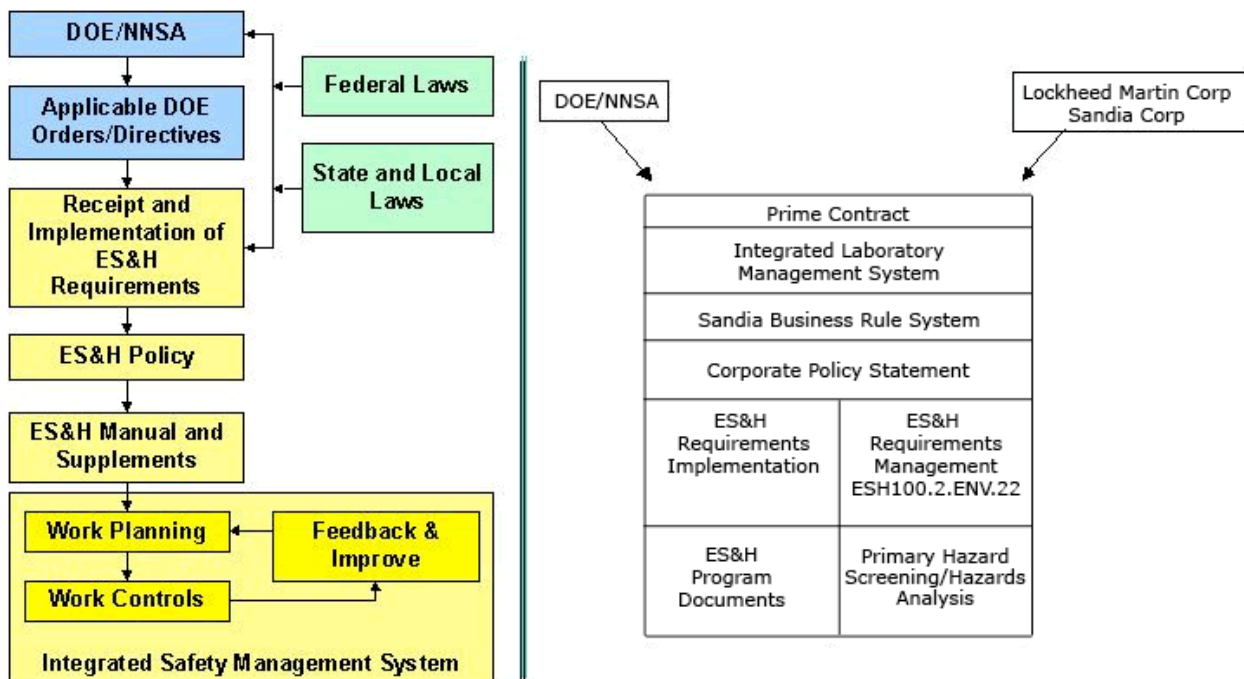
The Resource Conservation and Recovery Act (RCRA) is a federal program to manage both hazardous and nonhazardous wastes. RCRA is designed to:

- Protect human health and the environment
- Reduce/eliminate the generation of hazardous wastes
- Conserve energy and natural resources

The Environmental Protection Agency (EPA) designed RCRA to manage hazardous waste from "Cradle-to-Grave". This includes the generation, transportation, treatment, storage, and disposal of hazardous wastes.



### Optional Information *Flow of Requirements*



**MOW:** Wow, it looks like there are a lot of requirements to remember. Is there a condensed guidance available?

**ECC:** As a matter of fact there is. Corporate Procedure: ESH100.2.ENV.22, *Manage Hazardous Waste at SNL/NM* describes the hazardous waste management requirements that are applicable to the SNL/NM workforce. This is a valuable resource available to you.



### ESH100.2.ENV.22, *Manage Hazardous Waste at SNL/NM*

At SNL/NM, Hazardous Waste Management guidance is provided in the Corporate Procedure: ESH100.2.ENV.22, *Manage Hazardous Waste at SNL/NM*. It incorporates all the applicable elements from Federal, State, DOE and Corporate regulations and requirements.

### **Waste Prohibitions**

**ECC:** Let's go over a few things that you are not allowed to do unless specific approval is granted by your ECC. Hazardous waste generators **SHALL NOT** do any of the following with material identified as hazardous waste:

- Treat, dilute, or volume reduce the material. For example, treating a waste to reduce the hazard associated with it.
- Discard the material into trash cans, dumpsters or glass boxes per ESH100.2.ENV.22.
- Allow the material to enter sanitary waste lines or storm sewers via sinks,



- toilets, etc.
- Bury the material or release it to the ground, either directly or indirectly.
- Allow the material to evaporate or disperse into the atmosphere.
- Remove the material from SNL/NM-controlled premises or Kirtland Air Force Base.
- Bring any material identified as hazardous waste onto SNL/NM-controlled premises.

### ***Potential Consequences of Non-Compliance***

**ECC:** By the way, here are just a few of the consequences we could face by non-compliance with hazardous waste management requirements:

- potentially dangerous or life-threatening situations
- contaminated earth, air & water
- health or safety concerns
- fines (thousands \$ to several thousands \$ plus)
- corporate & individual accountability
- embarrassment and
- disciplinary action



### **Environmental Compliance Coordinators (ECCs)**

**Contact your ECC for clarification and additional guidance, for such aspects as:**

- hazardous/chemical waste
- air & water pollution/waste
- radioactive/ mixed waste
- explosive waste
- non-regulated waste
- medical/bio waste
- waste identification
- waste minimization through pollution prevention activities
- National Environmental Policy Act (NEPA) support
- The SNM/NM Chemical Exchange Program (CEP)





### ***Module 2 Questions:***

1. As a hazardous waste generator, it is your responsibility to ensure that:
  - Your hazardous wastes are placed in appropriate containers, and;
  - The containers are kept closed at all times unless adding or removing waste, and;
  - The containers are properly labeled, and;
  - The hazardous waste is managed in a waste storage area at or near the point of generation (usually in the same room) and under your control.
  - a) True
  - b) False
2. Which Document at SNL/NM incorporates all the applicable elements from Federal, State, DOE and Corporate regulations and requirements for the management of hazardous waste by waste generators?
  - a) SNL/NM ES&H Policy, Corporate Policy Statement Requirement No: CPSR400.1.
  - b) SNL Corporate Procedure: ESH100.2.ENV.22 Manage Hazardous Waste at SNL/NM
  - c) SNL/NM Developing ES&H Procedures (GN470098), Corporate Process Requirement No: CPR400.1.1.1.
  - d) None of the above.

### ***Module 2 Answer Key:***

1. a
2. b



## Module 3: Container Management

After successful completion of this module, you will be able to:

- Identify characteristics of an appropriate container.
- List guidelines for choosing the right container.
- List the elements of proper labeling.

### Container Management Requirements

**Store wastes in containers that are appropriate for the waste.**

**An appropriate container is:**

- chemically compatible with the waste (e.g., don't place strong acids/bases in metal containers)
- in good condition, leak free, without dents, creases, bulges, or corrosion that would compromise the integrity of the container
- **closed**, except to actively add or remove waste. A closed container will not allow any waste to escape into the environment
- free of external chemical contamination (i.e., all waste shall be inside its container)

### ***Separate incompatible wastes***

- use distinct containers (i.e., don't place incompatible wastes in the same container)
- physically segregate containers

### Label containers with a Hazardous Waste label

- contents should be described
- owner should be identified (including name, organization, and phone number in spaces provided)
- also label *empty* containers that are to be picked up (i.e., containers that are not "RCRA empty" or those containers with a capacity of greater than 5 gallons)
- after submitting Waste Description and Disposal Request (WDDR), put Disposal Request (DR) number and line item number on label

There are also labels which may be used for some materials for recycle, used oil, lead for reuse, and "Start Date" labels for <90 Day Accumulation Areas. The hazardous waste labels, and the other labels can be viewed at the link below.

ESH100.2.ENV.22, *Manage Hazardous Waste at SNL/NM* – Labels

Containers without proper labels...

- cause identification problems
- may become unidentified or unknown waste
  - unknown waste must be identified before disposal can occur
- cannot be picked up for disposal
- are not compliant with Federal regulations and Corporate Procedure: ESH100.2.ENV.22 *Manage Hazardous Waste at SNL/NM*

**ECC:** If unknown waste is found, contact your ECC for instructions and/or assistance with the identification process.

### Choosing the Proper Container for Your Waste

**ECC:** Here are some guidelines to help you choose the right container for your waste.

- Put liquid waste in rigid closed-top containers (bottles, jugs, or closed head drums). **Do not** use plastic bags for liquids.
- Non-liquid waste may be placed in non-rigid containers (plastic bags or boxes, as long as the container requirements are met).
- Don't put liquid and solid waste in the same primary container.
- Use secondary containment if a leak or spill would enter the environment, such as through sewers, drains, or for waste managed at an outside Satellite Accumulation Point (SAP).
- Exercise caution when using Ziploc® and similar bags as containers. If they develop an internal pressure, they may inadvertently open.

**ECC:** Contact your ECC for guidance on where to purchase containers.

### Labeling

**ECC:** A hazardous waste label must be applied as soon as one of the following occurs:

- Closed Container
- waste is added to the container
- chemical is no longer needed or has expired
- item is deemed to be a waste (such as nickel/cadmium battery)

**The hazardous waste label must be legible and contain:**

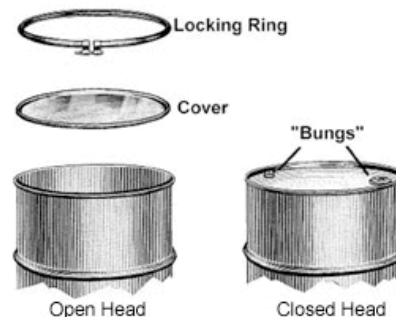
- WDDR number and line item number (when WDDR is submitted)
- Content description (process description including chemical names)
- Generator's name, organization, and telephone numbers

**Note:** At SAPs, dates are only needed when volume limits have been exceeded. When limit is exceeded, immediately apply a date to the container noting this date. (Time limits will be discussed later in this course.)

### Closed Container

**Ensure containers remain closed at all times, unless adding or removing waste.**

- Figure A is an illustration of an open head steel drum. Ensure cover is in place and the bolted ring is tight and extends over both the top chime and cover.
- Figure B is an illustration of a closed head or tight head steel drum. Ensure both fittings (or bungs) are tightly secured.



HAZARDOUS WASTE	
SA 2008-001 (000000) Superior (0000) 0000	
Contents: _____	
WDDR #: _____	Line #: _____
Owner Name: _____	
Org: _____	Phone: _____

Closure is also important where "process lines" or drain lines (tubing) come off of equipment and drain into hazardous waste containers.

Example of a specially designed funnel which is considered "closed" even when the machine is not in operation.

If tubing goes through an opening in the cap of the container, the container is deemed CLOSED only when:

- The machine power switch is turned off, AND
- All vent holes in the hazardous waste container are sealed or capped off.

In other words, the drain lines **must be disconnected and the container capped**.

Another approach is to use a device, such as a specially designed funnel or a check valve, to insure the hazardous waste container is closed when waste is not actively being discharged through the waste lines into the container. The use of these devices and contact information for purchase can be found at the following link:

Ensure Hazardous Waste Containers are RCRA-Closed by Using Waste Funnel



### Empty Container Definition

- All waste has been removed that can be removed by common practice for that type of container  
**and** (not **or**)
- no more than 3% by weight of the total capacity remains in the container.
- Did not contain acutely hazardous waste (Sandia's Chemical Information System (CIS) P List Waste – Instructions for use)
- Do not have a capacity greater than five gallons

Empty containers may be disposed of in the regular trash at SNL/NM.

**Note:** For aerosol cans, make sure the valve is working and when pushed, no more material or gas sprays out before discarding as empty.

Containers with a capacity of greater than 5 gallons should be labeled with the words "Empty Container" and submitted for disposal on a WDDR.

### Best Management Practices For Waste Generators

A number of best management practices have been noted to increase effectiveness at satellite accumulation points and to prevent noncompliances. Selected examples include:

- Use of **self-closing containers** to prevent open container violations. These include step cans with self closing lids, containers with spring loaded closures (such as non-metallic self close corrosive safety containers) and galvanized steel safety cans for flammables.
- Use of **waste addition logs** in situations where several generators are adding incremental amounts of similar, compatible -- but not identical -- waste to a common container. The log, SF 2001-WAL, Waste Addition Log (Word file/Acrobat file), tracks which wastes have been added to the container for accurate later characterization.

- Including **special handling protocols** for the safe management of hazardous waste ESH100.2.GEN.3, *Develop and Use Technical Work Documents* for the area.

### **Module 3 Questions:**

1. When must you apply a hazardous waste label to your hazardous waste container?
  - a) As soon as you get around to it.
  - b) Tomorrow, after you get that priority your supervisor just handed you out of the way.
  - c) Just before the pickup crew comes to pick up your hazardous waste.
  - d) As soon as you place the waste into the container.
2. If you have a liquid waste, it is okay to place it in a plastic bag for disposal.
  - a) True
  - b) False
3. The selection of an appropriate container for your hazardous waste is a container that is:
  - chemically compatible with the waste;
  - in good condition, leak free, without dents, creases, bulges, or corrosion that would compromise the integrity of the container;
  - closed, except to actively add or remove waste; and
  - free of external chemical contamination.
  - a) True
  - b) False

### **Module 3 Answer Key:**

1. d
2. b
3. a

## Module 4: Common Waste Streams

After successful completion of this module, you will be able to:

- Identify common waste streams at SNL/NM.

### Types of Hazardous Waste Streams at SNL/NM

- solvents, corrosives, oxidizers
- flammable/ combustible chemicals
- explosives, pyrotechnics, propellants
- water-reactive chemicals and metals
- liquids that are specifically **NOT** allowed in landfills, storm sewers or sanitary sewers
- common waste streams

**MOW:** What types of wastes are considered common waste streams at SNL/NM?

**ECC:** Glad you asked. Common waste streams covered by ESH100.2.ENV.22, *Manage Hazardous Waste at SNL/NM* include such things as:

- contaminated rags & wipes
- aerosol cans
- batteries
- explosive contaminated items
- light bulbs (fluorescent and incandescent)
- Polaroid film
- solder & solder scrap
- toner cartridges
- used oil

### Money Saving Idea:

#### Aerosol Cans

**ECC:** It's expensive to buy material in aerosol cans. In most cases you're paying 2 to 3 times more for the product inside a can and you're paying for the propellant as well.

Using refillable aerosol or pump cans allows significant savings on raw material purchase cost because you can buy in bulk. And, of course, you also eliminate hazardous waste disposal costs.



**MOW:** You said aerosol cans are one of the common waste streams at SNL/NM. I have a lot of products in aerosol cans. If I know that an aerosol can is empty, may I throw it in the regular trash?

**ECC:** While it is true that Corporate Procedure: ESH100.2.ENV.22, *Manage Hazardous Waste at SNL/NM* allows for aerosol cans to be discarded in the regular trash if they are **completely empty of product and propellant**, this is

difficult to ensure. Your best bet is to manage it as a hazardous waste if you are unsure.





**MOW:** Is it ok to puncture an aerosol can to make sure it is empty?

**ECC:** No, never puncture an aerosol can! This can be a dangerous practice and is not allowed at SNL/NM. It is best practice to completely use the product in the aerosol can.

You must **never intentionally spray** the contents for the purpose of emptying an aerosol container. If you are in doubt about whether it still contains product or propellant, it is best to manage it as a hazardous waste.



**ECC:** There are other items on the list of *Management of Common Waste Streams* in ESH100.2.ENV.22 that we should mention:

**Batteries** – carbon-zinc and alkaline batteries size AAA through D & 9-volt can be placed in the trash. All other battery sizes and types must be managed as hazardous waste with the proper labeling and terminals taped (except lead-acid batteries which can use a "Material for Recycle" label). Batteries sent to the HWMF must be physically separated by type (e.g., lithium, lead acid, etc.) and be listed as separate line items on the WDDR. Some of the batteries are sent to recycle facilities from the Hazardous Waste Management Facility (HWMF). Rechargeable batteries, regardless of their size are hazardous waste.

**Solvent contaminated wipes/swabs** –used with specific solvents and used until dry can be thrown in the trash. You are not allowed to leave the wipes exposed simply for the purpose of "air-drying" them. Other contaminated wipes and rags may be able to be profiled to exclude them from regulation. Ask your ECC for guidance in your laboratory.

### **Money Saving Ideas**

#### **Batteries**

**ECC:** If we look at the choices we have for AA, C, and D cell batteries, and compare their cost, we should look at cost per kilowatt-hour. Disposable batteries are by far the most expensive way to use energy. Depending on the type, capacity, and cost of the battery, disposables carry a price tag ranging from \$400 to over \$20,000 per kilowatt-hour. In contrast, the cost for using rechargeable batteries is less than \$1.00 per kilowatt-hour!

#### **Solvents**

Many types of solvents create hazardous waste and can be dangerous to health as well. Within the last few years many new, less hazardous solvents have been developed for cleaning and synthesis processes. The website below provides information about identifying alternative solvents.

- Green Processing: <http://www.ehponline.org/docs/1998/Suppl-1/253-271sherman/abstract.html>

**Light Tubes and Bulbs** (Fluorescent and Incandescent): 4 feet and 8 feet fluorescent light tubes (intact or broken) have been profiled and determined not to be hazardous waste. The tubes shall be put into a container and labeled with the words "fluorescent light tubes for recycle" and submitted on a WDDR according to the requirements in the "Disposal Request" found in Corporate Procedure: ESH100.2.ENV.22 Manage Hazardous Waste at SNL/NM.



***Circular, U-shaped waste fluorescent tubes and incandescent light bulbs shall be managed as hazardous waste. Do not place light bulbs/fluorescent tubes in glass box receptacles.***

**Solder** (lead, tin, silver, etc.): scraps and pieces may be managed as a recyclable material instead of hazardous waste and must be placed in a container with the words "Scrap Solder for Recycling", or with a "Material for Recycle" label. If using different solder types (e.g., lead, silver, indium) they should be physically separated and listed as separate line items on the WDDR!

**Used or waste oil:** Used oil to be recycled through the Hazardous Waste Management Facility if it meets specific criteria. If these criteria are met, a "Used Oil" label must be applied and is available through your ECC. If the used oil fails to meet any of the criteria, then it shall be labeled and managed as hazardous waste. Contact your Division ES&H Team or the used oil program coordinator to request additional information.



**MOW:** What about sampling? Do I need to have samples taken and obtain an analysis of the waste?

**ECC:** Sampling may not be necessary. You can make some type of determination by how the chemical or product is used. This is called "knowledge of process" (KOP) or process knowledge.

Also, many commercially available chemical products may indicate their hazardous nature on the label.



If your waste does need sampling, your ECC can help you arrange for it to ensure adequate data.

### **Module 4 Question:**

1. According to Corporate Procedure: ESH100.2.ENV.22, it is permissible to dispose of an empty aerosol can in the trash. You have a can of enamel spray paint that you want to dispose of, but it is not quite empty. You decide to touch up the paint on a piece of equipment in your shop. You use the spray paint until it runs out of paint (used for its intended purpose), but there is still some propellant left. Based on this scenario, you can dispose of this can in the trash.
  - a) True
  - b) False

### **Module 4 Answer Key:**

1. b

## Module 5: Managing Hazardous Waste Areas

After successful completion of this module, you will be able to:

- Identify Satellite Accumulation Point (SAP) Management requirements.
- Identify responsibilities associated with 90-day Accumulation Areas.



**MOW:** You mentioned something about establishing hazardous waste management areas?

**ECC:** Yes! You can manage your waste(s) at either a SAP or 90-Day Accumulation Area.

A SAP has the most basic management requirements and the majority of hazardous waste management areas at SNL/NM are SAPs.



A 90-day Accumulation Area requires more stringent management efforts.

Your ECC can help you decide which is best for your situation. Let's look at the description of a SAP...

### Satellite Accumulation Point (SAP)

A waste storage area established at or near the point of generation (generally within the same room where the waste is generated):

- to manage hazardous waste for an indefinite period of time
- at volumes at or below 55 gallons, and at or below one quart for acute hazardous waste (includes solid, liquid and gas).
- Every location that hazardous waste is stored, at a minimum, is a SAP.
- Remember, there is no time limit for waste storage at a SAP, but you must keep the volume at or below 55 gallons of hazardous waste (or 1 quart of acute hazardous waste).
- If the waste volume exceeds 55 gallons (or 1 quart of acute hazardous waste) the excess waste must be removed in three (3) calendar days (not working days). Also, you must not move wastes between SAPs!
- The majority of hazardous wastes at SNL/NM are managed at a SAP.



**ECC:** Here are the requirements for managing hazardous wastes at a SAP...

### SAP Management Requirements

- Waste is under the control of the generator.
- SAP is located at or near the point of generation.
- SAP is located at least 20 feet from a security fence (SNL/NM Security requirement).
- Hazardous waste accumulation at a SAP is limited to a total volume of 55 gallons.
- Acute hazardous waste accumulated at a SAP is limited to a total volume of one quart.

**ECC:** Don't forget to label every container with a Hazardous Waste Label as soon as hazardous waste is placed in it and to keep all containers closed except when actively adding or removing waste.

- Volume limits apply to all forms of hazardous waste – liquid, solid and gas.
- Hazardous waste in excess of the 55 gallons of hazardous waste limit or the one quart acute hazardous waste limit must be marked with the date the volume limit was exceeded.
- If you exceed the volume limit at a SAP, you have three (3) **calendar** days to remove the excess volume of waste (including weekends and holidays)!

**ECC:** Remember that there is no time limit as long as the total volume of hazardous waste at a SAP remains at or below 55 gallons of hazardous waste and at or below one quart of acute hazardous waste.

- **SAP Brochure**

SAP management requirements are available in the SAP Brochure, Generator Quick Reference Guide available from the Environmental Protection Program web site.

**MOW:** So a SAP is limited to **55 gallons of hazardous waste** or **one quart of acute hazardous waste**, but as long as I'm under those volume limits, I can store the waste indefinitely?



**ECC:** Yes, there is no time limit as long as you stay within your volume limits. However, we encourage you to have your waste picked up in a reasonable

time period. Do you really want some chemical waste hanging around in your SAP for months? This also helps prevent accumulation of unknown or unidentified waste.

### HAZARDOUS WASTE MANAGEMENT SATELLITE ACCUMULATION POINT (SAP)

*Generator Quick Reference  
Guide*



 Sandia National Laboratories

## 90-Day Accumulation Areas

**MOW:** What about managing a 90-Day Accumulation Area?



**ECC:** The requirements of operating a 90-Day Accumulation Area are more stringent. Training for managing a 90-Day Accumulation Area is available through the ENV216 or ENV316 and ENV416 courses. You must have approval from your ECC **prior to** establishing a Less Than 90-day Accumulation Area.

Your ECC can help you decide which is best for your situation. However, here is a quick look at that type of hazardous waste management area...

**A waste storage area established to manage:**

- greater than 55 gallons of hazardous waste or
- greater than one quart of acutely hazardous waste

The hazardous waste must be removed from storage to a permitted facility prior to 90 days.

ECC: A 90-Day Accumulation Area can accept waste from SAPs.

However, requirements such as annual training and records are more stringent than at SAPs. Let's have a quick look...

- No volume limits apply but there is a 90 day time limit at which point the waste must be removed to a RCRA-permitted facility
- There is an annual training requirement (ENV216 or ENV316 and ENV416 courses)
- There is a requirement for specific records management including written weekly inspections
- Guidance and requirements can be found in the Corporate Procedure: ESH100.2.ENV.22, *Manage Hazardous Waste at SNL/NM*.



### Lessons Learned For Waste Generators

Over the years a number of lessons learned have emerged as a result of problems and noncompliant situations that have arisen. Selected examples of the lessons learned include:

- When a chemical lab is in transition from one lab owner to another, the Project Leader who inherits the lab must establish control over the new space, including the hazardous waste, access to the waste stored in the lab, and disposal records and activities associated with waste. Optimally, the new lab owner should negotiate with the former owner, the wastes he/she is willing to accept control over and who will pay the chargeback costs. In the past, lack of control has led to situations where regulated waste items have been lost or disposed as normal trash.
- Insure containers of hazardous waste are properly labeled with the SNL/NM hazardous waste label. In the past, violations have accrued to containers of hazardous waste at SNL/NM which were not properly labeled. Also, labeling of hazardous wastes should be done in a manner that does not obscure other important information or labeling on the container. There have been past situations where hazardous waste labels and packaging have obscured other information including radioactive markings and safe handling information.

### Additional Lessons Learned

- Containers of hazardous waste in a satellite accumulation point (SAP) need to be kept "at or near the point of generation". In past years, SNL/NM has been cited for hazardous waste containers that have not been kept "at or near" – including at least two instances where containers were kept outside the building in which the waste was generated.
- Containers of hazardous waste need to be kept closed at all times except when adding or removing waste. In past years, SNL/NM has been cited for open containers of hazardous waste, including once instance where a can of waste lead solder was left open when not in use.

### **Module 5 Questions:**

1. A Satellite Accumulation Point (SAP) to temporarily store hazardous waste must be located at or near the point of waste generation and the waste kept under the control of the generator.
  - a) True
  - b) False
2. Hazardous waste stored at a SAP has no automatic time limit; however, the waste volume must be kept at or below 55 gallons (counting both liquid and solid wastes produced from the same process or waste stream).
  - a) True
  - b) False
3. If I have larger volumes of waste (not including acutely hazardous waste), it could be necessary to establish a 90-Day Accumulation Area. Which of the following are true?
  - a) I will need ENV216 or ENV316 and ENV416 annually.
  - b) I need to ensure that waste is moved to the permitted Hazardous Waste Management Facility (HWMF) within 90 days.
  - c) I have to follow specific records requirements.
  - d) I need to be prepared for written weekly inspections.
  - e) All of the above are true.

### **Module 5 Answer Key:**

1. a
2. a
3. e

## Module 6: Hazardous Waste Disposal Request Process

After successful completion of this module, you will be able to:

- Understand the steps to request disposal of hazardous waste.
- Complete the necessary forms to request disposal of hazardous waste.



**MOW:** So, I containerized my waste; labeled it; and managed it in the appropriate hazardous waste management area. Now what? How do I arrange to have my hazardous waste removed from my waste management area(s)?

**ECC:** At SNL/NM we use the Waste Description and Disposal Request (WDDR). The WDDR is an electronic disposal request system developed here at SNL/NM. The Hazardous Waste Management Facility (HWMF) receives your request for disposal.



After they determine that you have provided enough information to characterize, transport, and dispose of the waste, they schedule a pick-up to remove the waste to their permitted facility. Let's take a quick look at the process...

**MOW:** Wait! What is the Hazardous Waste Management Facility?

**ECC:** The Hazardous Waste Management Facility is one of three waste management facilities at SNL/NM:

- **The Hazardous Waste Management Facility (HWMF)**  
Stores and packages hazardous and non-regulated wastes at SNL/NM, for disposal through RCRA permitted disposal facilities
- **The Solid Waste Transfer Facility (SWTF)**  
Screens the trash, manages recycle streams, and transports solid wastes to the landfills
- **The Radioactive and Mixed Waste Management Facility (RMWMF)**  
Manages and transfers radioactive and mixed wastes at SNL/NM for disposal to permitted disposal facilities mixed waste is a combination of hazardous waste and radioactive waste. Mixed waste at SNL can only be managed at the RMWMF.

**ECC:** Now, let's continue with a quick tour of the disposal request process...

### Waste Description & Disposal Request (WDDR)

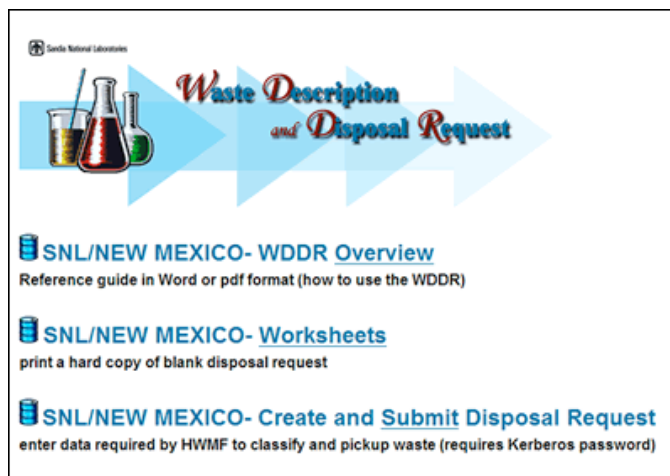
Request disposal of hazardous chemical wastes by completing a WDDR. **The WDDR may not be used to request disposal of radioactive, mixed or explosive waste.**

**ECC:** The WDDR is an electronic disposal request system.

You enter information describing your wastes into the system and a pickup request is initiated.

Your ECC can assist you in setting up and using the WDDR on your computer system.





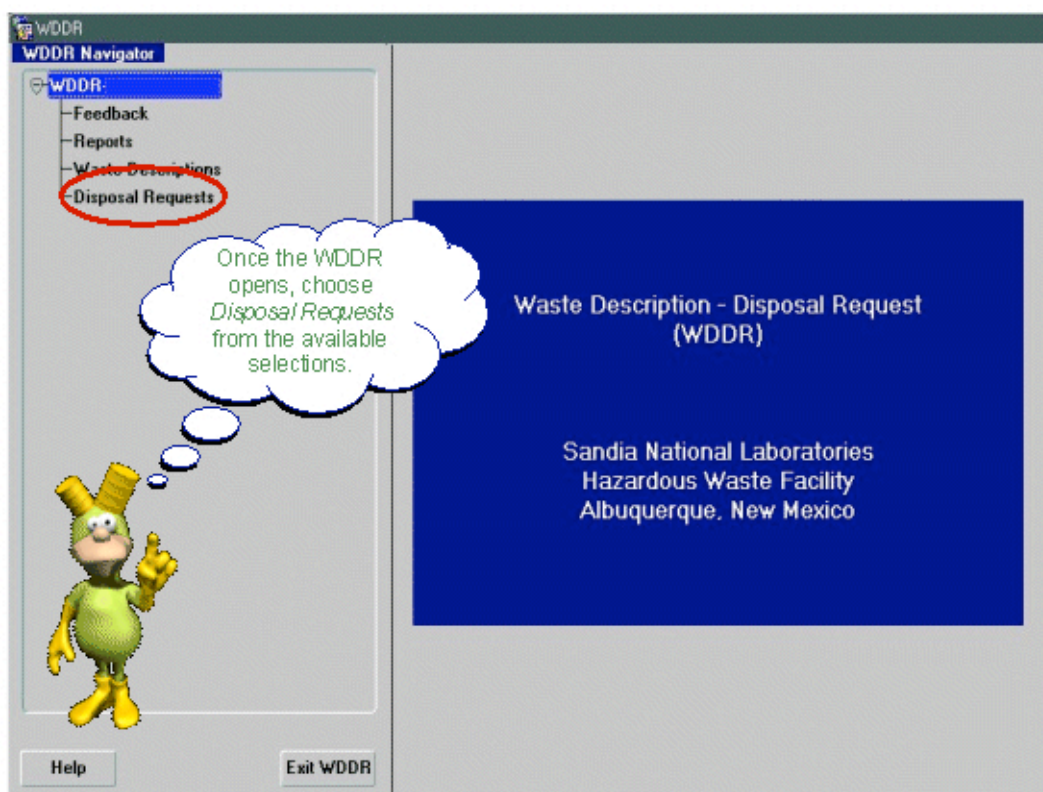
**Remember – the WDDR may not be used to request disposal of radioactive, mixed or explosive waste.**

**ECC:** It's easy! Type WDDR in the address bar of your browser.

Select the state for the disposal request.

Choose Create and Submit Disposal Request. This will get you onto the system.

Enter your Kerberos userid and password to access the WDDR.




**WDDR**  
WDDR Navigator

**ECC:** Use this screen to create and edit Disposal Requests Folders.

- When the Personal Folders checkbox is checked, the system lists folders under your account
- When the Delegated Folders checkbox is checked, the system lists folders for which you have been delegated preparation authority.

Choose the appropriate folder in which to create a new disposal request.

You can **create** a new folder to meet your unique waste management needs.



Help Exit WDDR

v 060507

**Folders**

Display: ☒ Personal folders ☐ Delegated folders

Folder Name	Owner Name
ENVIRONMENTAL PROTECTION	

Help Print Create Edit Delegate

**Disposal Requests in Folder: ENVIRONMENTAL PROTECTION**

Display: ☒ Initiated ☒ Submitted ☐ Approved ☐ Ready to be picked up  
☐ Closed # of DR's: 0

DR Number	DR Type	Date Created	Requester	DR Status

Help Copy Move Create Edit


**WDDR**  
WDDR Navigator

**ECC:** Use this portion of the screen to create and edit Disposal Requests.

The checkboxes allow you to choose which Disposal Requests are listed in the section below the checkboxes. They are mostly self-explanatory but here's a quick review of them:

- Initiated:** to view Disposal Requests that you have created, but have not been submitted to the HWMF.
- Submitted:** to view Disposal Requests that you or a delegate has submitted to the HWMF.
- Approved:** to view your Disposal Requests that have been approved by the HWMF.
- Ready to Be Picked Up:** to view a list of approved Disposal Requests ready to be picked up.
- Closed:** to view a list of your Disposal Requests that have been picked up and the records closed.

**Note:** When you create a Disposal Request a unique number will be listed under the DR Number column for that request. This is the number you need for your Hazardous Waste Labels.



Help Exit WDDR

v 060507

**Folders**

Display: ☒ Initiated ☒ Submitted ☐ Approved ☐ Ready to be picked up  
☐ Closed # of DR's: 0

DR Number	DR Type	Date Created	Requester	DR Status

Help Copy Move Create Edit



**WDDR**  
WDDR Navigator

**Disposal Request (Create or Edit)**

ECC: Click on the **Create** button to create a new disposal request or the **Edit** button to edit an existing disposal request.

Note: You can only edit a DR that is in the initiated stage.

Help Print Create Edit Delegate

**Disposal Requests in Folder: ENVIRONMENTAL PROTECTION**

Display: ☒ Initiated ☒ Submitted ☐ Approved ☐ Ready to be picked up  
☐ Closed # of DR's: 0

DR Number	DR Type	Date Created	Requester	DR Status

Help Copy Move Create Edit

Help Exit WDDR

v 060507

**Folder**

Folder Name: TEST Folder Owner: MOW

**Disposal Request Header**

Disposal Request Number: 2011599 Requester Name: MOW Disposal Request Type: WEB Disposal Request Status: INITIATED

Requester Phone Number: 5058466789 Requester Fax Number (optional): 5058443747 Requester Mail Stop: 1050 Requester Organization:

Location Where Waste is Stored? Tech Area: Building: Room: Additional Location Info:

Urgent Pick Up? ☐ Yes ☒ No

ES&H Section 19A (Time Limit) ES&H Section 19A (Volume Limit)

Disposal Request Additional Information (optional):

**Disposal Request Line Items**

**Add Line Item** Number of Containers: Container Description:

Remove Edit  
Remove Edit  
Remove Edit  
Remove Edit  
Remove Edit

Help Report Change Hi... Void Save Submit Exit

The upper portion of the form is pre-filled with your information

You add location information for where the waste is stored.

Are you over your 55 gallon limit? Then click **YES** for Urgent Pick Up.

When you're ready to list your waste click on the **Add line item** button....

**Container Information** Line Item 1

1. Number of containers on this line item?

2. Describe the container. Size:  Composition:  Type:

3. Approximate total weight of the containers with contents?  4. Unit of measure? ☐ GM ☐ KG ☐ LB ☐ OZ

5. Return containers? ☐ YES ☒ NO

6. Location where waste was generated? (Enter only if location is different than where waste is stored.)  
Tech Area  Building  Room  Add Location Info (optional)

7. Was any waste on this line item generated or stored in a Restricted Access Area (RMMA)? ☐ YES ☒ NO [ES&H Sect. 19D](#)

8. Does your waste contain any Polychlorinated Biphenyls (PCBs)? ☐ YES ☒ NO [ES&H Sect. 10D](#)

8a. If Yes, enter removed from service date (optional)

9. Line Item Additional information (optional)

**Financial Information**

10. Disposal of waste should be charged to?  Waste Number

**Waste Description**

11. Phase of waste?

12. Origin of waste?

13. Add all Waste Constituents

**Add Constituent**

14. Add all Waste Constituents (optional)

15. Supply any additional information about your waste that you think may be helpful (special hazards, characteristics, etc.) (optional)

Help Exit

You enter information about your waste on this form. Make note of the **Line Item Number** and include this on the Hazardous Waste label

Be sure to list all of the constituents of your waste in section 14. Click on the **Add Constituent** button and enter each constituent of this waste.

**Folder**

Folder Name  Folder Owner

TEST  MOW

**Disposal Request Header**

Disposal Request Number  Requester Name  Disposal Request Type  Disposal Request Status

2011599  MOW  WEB  INITIATED

Requester Phone Number  Requester Fax Number (optional)  Requester Mail Stop  Requester Organization

5058466789  5058443747  1050  3124

Location Where Waste is Stored? Tech Area  Building  Room  Additional Location Info (optional)

Urgent Pick Up? ☐ Yes ☒ No

[ES&H Section 19A \(Time Limit\)](#) [Section 19B](#) [Section 19C](#) [Section 19D](#) [Section 19E](#) [Section 19F](#) [Section 19G](#) [Section 19H](#) [Section 19I](#) [Section 19J](#) [Section 19K](#) [Section 19L](#) [Section 19M](#) [Section 19N](#) [Section 19O](#) [Section 19P](#) [Section 19Q](#) [Section 19R](#) [Section 19S](#) [Section 19T](#) [Section 19U](#) [Section 19V](#) [Section 19W](#) [Section 19X](#) [Section 19Y](#) [Section 19Z](#)

Disposal Request Additional Information

**Disposal Request Line Items**

Add Line Item

Remove	Edit	Number of Cont.	Con	Description	Waste Description
Remove	Edit				
Remove	Edit				
Remove	Edit				
Remove	Edit				
Remove	Edit				

Help Report Change Hi... Void Save **Submit** Exit

When you have completed the Disposal Request and are ready to submit your waste for pick-up, select the **Submit** button ...

**Folder**

Folder Name: JPEARCE FOLDER Folder Owner:

**Disposal Request Header**

Disposal Request Number: 2040796

Requester Phone Number: 5052841663

Location Where Waste is Stored?

Tech Area: TA 1 Building: 856

Is this a Less than 90 Day Accumulation? [EPCRA Sect. 19A-1](#)

**Disposal Request Certification**

I certify that the information entered in this Disposal Request is true and correct to the best of my knowledge; that chemicals and other materials are properly packaged and labeled and are safe for handling; and that this Disposal Request contains no explosive items, radioactive items, or classified information.

Do you want to submit this disposal request to Hazardous Waste Facility?

Help Yes No

You are presented with a dialog box that asks you to certify the information you have provided on your waste. Once you select **Yes**, your Disposal request is sent to the HWMF for processing.

Be sure to put the **Disposal Request (DR)** number and **Line Item** numbers from the Disposal Request you have created online on the Hazardous Waste labels for each of your wastes.

You can find a detailed guide to the WDDR process at: <http://wddr/hmoverview.html> in either a Microsoft Word or Adobe PDF format.

**ECC: Questions or need assistance? Contact your ECC**

Click the mouse on the field Prompt for a further explanation of the field:  
Display -- The Containers assigned to the Line

Report Change History Void Save Submit Exit

### Module 6 Questions:

1. The electronic Waste Description and Disposal Request (WDDR) form is used for requesting disposal of:
  - a) Explosive waste.
  - b) Hazardous chemical waste.
  - c) Radioactive waste.
  - d) Mixed (hazardous and radioactive) waste.
2. Before hazardous waste is removed from your storage area, it must be:
  - a) In a container that is in good condition and compatible with the waste.
  - b) Labeled to identify the generator and the type of waste.
  - c) Labeled to include the WDDR number and line item number (from the WDDR) on the hazardous waste label.
  - d) Listed on a WDDR form and submitted.
  - e) All the above.

### Module 6 Answer Key:

1. b
2. e



## Module 7: Environmental Management System (EMS)

After successful completion of this module, you will be able to:

- Identify the elements of the SNL/NM Environmental Management System as part of the Integrated Safety Management System (ISMS).
- Identify appropriate application of SNL/NM Recycle Program.
- Recognize the function of the Pollution Prevention Program.

**MOW:** What is an Environmental Management System (EMS)?

**ECC:** In simple terms, an EMS is a quality system that helps you identify and manage your environmental impacts. At SNL/NM, the Environmental Management System (EMS) is part of our Integrated Safety Management System (ISMS) that you are already familiar with...

**MOW:** You mentioned EMS is an element of ISMS. Can you explain how it all fits?

**ECC:** Sure! There are several elements supporting the EMS that help you identify and mitigate risks/hazards to get your work done safely. Your ES&H Coordinator is a part of the EMS, as are the ECCs. Listed below are some of the elements that comprise the EMS that works in conjunction with ISMS. (Click on any of the links for additional optional information.)

- Primary Hazard Screening/Hazards Analysis (PHS/HA)
- National Environmental Policy Act (NEPA)
- Pollution Prevention (P2)
- ECCs
- Division ES&H Coordinators
- Center ES&H Coordinators

### ES&H Policy – ESH100 Environment Safety & Health

SNL's ESH100, *Environment, Safety, and Health* is also a part of the EMS...

*It is the policy of Sandia Corporation to protect Members of the Workforce and the public, prevent incidents, and integrate environmental stewardship and sustainability throughout the life cycle of its activities. We conserve natural resources and protect the environment.*

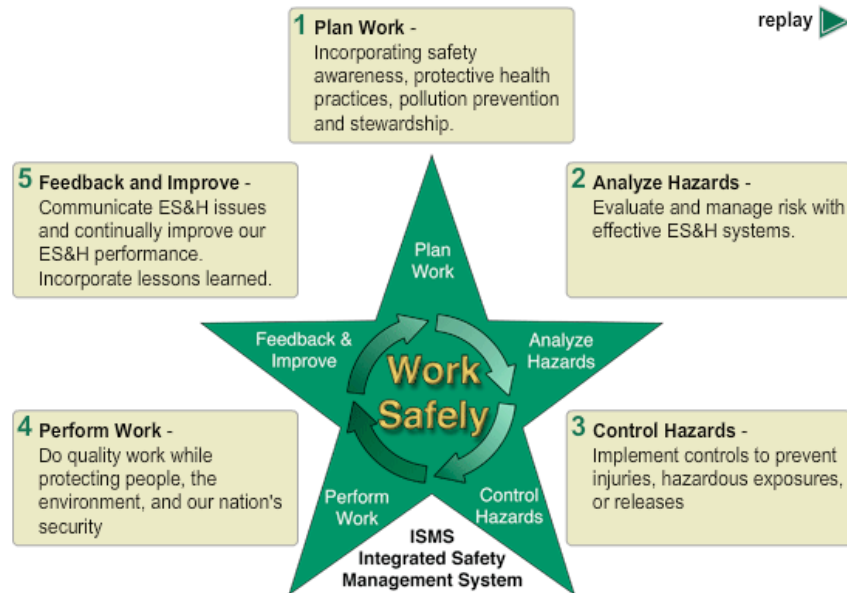
*DOE's Integrated Safety Management System (ISMS) is a key element of Sandia's Integrated Laboratory Management System (ILMS). ISMS provides the framework for managing ES&H activities and functions while integrating them into all SNL operations.*

**SNL's corporate ES&H program mandates compliance with all applicable laws, regulations, DOE directives included in the Prime Contract between DOE and SNL, and internal corporate policy requirements. SNL has adopted the core values of: integrity; excellence; service to the nation and each other; and teamwork. SNL strives to incorporate the five course ISMS process functions:**

- **Plan Work** – incorporating safety awareness, protective health practices, pollution prevention, and stewardship
- **Analyze Hazards** – evaluate and manage risk with effective ES&H systems
- **Control Hazards** – implement controls to prevent injuries, hazardous exposures, or releases

- **Perform Work** – do quality work while protecting people, the environment, and our nation's security
- **Feedback and Improve** – communicate ES&H issues to our employees, the community, regulators, and stakeholders and improve our ES&H performance, including incorporating Lessons Learned

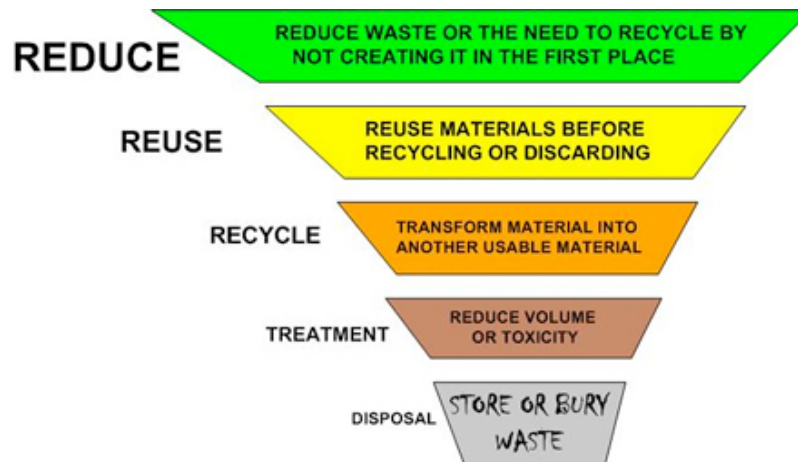
### ISMS and the ES&H Policy work together



## Pollution Prevention

Pollution Prevention is reducing or eliminating the amount or toxicity of wastes, and their proper management once generated.

This figure demonstrates the foundation of pollution prevention outlined in the Pollution Prevention Act of 1990. It is based on a hierarchy of solutions to prevent releases of pollution into the environment. The levels within this hierarchy, beginning at the top and working downward, represent the highest to lowest preferences.



## Hazardous Waste & Environment Management (ENV112)

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- Source reduction, the highest priority, is any practice that results in the reduction of waste, energy use or resources at the source.
- Reuse means finding a way to use a material that would otherwise be waste in the same way as it was originally intended to be used without the need for additional processing. For instance, instead of throwing a piece of paper away, turn it over and write or print on the clean side.
- Recycling means to divert material from disposal by remanufacturing it in some way so that it becomes usable again. Refilling toner cartridges is a good example.
- Treatment is any process that changes the basic characteristics of waste material to make it more amenable to environmentally acceptable disposal. It is an added expense that adds no value to the material but may reduce the volume or toxicity. (Note: Treatment of hazardous waste is not allowed at SNL except in very limited situations.)
- Disposal is the action we wish to avoid in pollution prevention. Waste is disposed when it is assumed the material can no longer be used as a resource.

The Pollution Prevention (P2) group can assist you in reducing or eliminating your hazardous waste generation through a Pollution Prevention Opportunity Assessment (PPOA).



P2 is based on the Pollution Prevention Act of 1990. It is a national policy that pollution should be prevented or reduced at the source, recycled in an environmentally safe manner, or as a last resort, should be disposed of in an environmentally safe manner.



### Recycle Programs at SNL/NM

- **White Paper** – Place your recycle paper in blue totes, conveniently located throughout SNL/NM.
- **Chemical Exchange** – Advertise your unused chemicals to other Members of the Workforce at SNL/NM.
- **Lead Bank** – For questions concerning lead you no longer need, or if you need lead, see Chapter 10L in the ES&H Manual.
- **Used Oil** – The majority of the used oil at SNL/NM is sent for recycle.
- **Toner Cartridges** – Place used toner cartridges next to the blue recycled paper totes.
- **Metals** – (Exception – Metals subject to the ESH100.2.ENV.8, Manage Excess Metallic Lead.)
- **Styrofoam Packing Peanuts**
- **Cardboard**

### *Reapplication of Excess Property*

Additionally, SNL/NM is responsible for assuring that maximum use is made of all government-owned property through Property Reapplication.

### **Module 7 Questions:**

1. At SNL, Environmental Management System (EMS) is considered part of the Integrated Safety Management System (ISMS).
  - a) a True
  - b) b False
2. SNL's ES&H Policy is to support the Corporate Vision and protect and preserve the environment, as well as the safety and health of who?
  - a) a Employees
  - b) b Contractors
  - c) c Visitors and the public
  - d) d All of the above

### **Module 7 Answer Key:**

1. a
2. d

## **ENV112 Final Test**

- 1. A material is considered to be “waste” if it**
  - a) Can no longer be used for its intended purpose.
  - b) Is declared waste.
  - c) Is discarded, abandoned, or there is an element of discard or abandonment.
  - d) Meets at least one of the above criteria.
- 2. Which of the following is NOT considered hazardous waste at SNL?**
  - a) Used vacuum pump oil that has not been profiled.
  - b) Nitric acid solution (pH is less than 2.0), which can no longer be used because of contamination.
  - c) A bottle of used acetone you intend to use for another purpose.
  - d) A bottle of used acetone you cannot use for another purpose.
- 3. Any member of the workforce or visitor who generates, stores, or requests disposal of a hazardous waste is a(n)**
  - a) ES&H Coordinator.
  - b) Hazardous Waste Generator.
  - c) Environmental Compliance Coordinator (ECC).
  - d) DOE Auditor.
- 4. What resources are available to you to determine if your waste is hazardous?**
  - a) Corporate Procedure: ESH100.2.ENV.22 Manage Hazardous Waste at SNL/NM
  - b) SNL/NM Chemical Information System
  - c) Material Safety Data Sheets (MSDSs)
  - d) Corporate Procedure: ESH100.2.ENV.22 Manage Hazardous Waste at SNL/NM, SNL/NM Chemical Information System, MSDSs, Environmental Compliance Coordinators
- 5. A generator of hazardous waste is responsible for:**
  - a) Identifying hazardous waste.
  - b) Properly managing hazardous waste at their Satellite Accumulation Point (SAP).
  - c) Initiating disposal by submitting a disposal request to the Hazardous Waste Management Facility (HWMF).
  - d) Managing hazardous waste until it is removed by HWMF personnel.
  - e) All of the above.



- 6. Waste generators shall place incompatible wastes in separate containers.**
  - a) True
  - b) False
- 7. All Federal and State hazardous waste requirements that are applicable to SNL/NM waste generators are described in Corporate Procedure: ESH100.2.ENV.22 Manage Hazardous Waste at SNL/NM.**
  - a) True
  - b) False
- 8. A container of hazardous material meets the definition of empty and may be thrown into the dumpster (trash) when**
  - a) The container did not formerly contain acutely hazardous material and is not greater than five gallons in capacity.
  - b) No more than 3% by weight of the total capacity remains inside.
  - c) All contents have been removed using common practice.
  - d) All of the above.
- 9. You experience a spill of a liquid hazardous material and use several rags to sop up the liquid. You place the liquid-soaked rags into a plastic bag. Even though there is a significant amount of liquid (free liquid) in the bottom of the plastic bag, you have selected the appropriate container for this type of waste.**
  - a) True
  - b) False
- 10. When must an appropriately completed SNL Hazardous Waste Label be affixed to a container of chemical waste?**
  - a) When the container is full.
  - b) When the container is submitted for disposal.
  - c) When waste is first placed inside the container.
  - d) When the waste volume exceeds 55 gallons.
- 11. A full can of spray paint with a broken valve must be sent to the Hazardous Waste Management Facility (HWMF) because:**
  - a) It can no longer be used for its intended purpose.
  - b) The container is not empty.
  - c) Both a and b

**12. What volume of acute hazardous waste (not regular hazardous waste) must not be exceeded at any single Satellite Accumulation Point (SAP)?**

- a) 100 gallons
- b) 1 quart.
- c) 55 quarts.
- d) There is no limit.

**13. When a generator establishes a Satellite Accumulation Point (SAP),**

- a) The hazardous wastes must be stored at or near the point of generation (and generally within the same room where it was generated).
- b) The hazardous wastes must be under control of the generator.
- c) Every container must be labeled with a Hazardous Waste Label as soon as hazardous waste is placed in the container.
- d) All containers must remain closed except to actively add or remove waste.
- e) All of the above.

**14. A 90-day Accumulation Area requires much less stringent management efforts than a Satellite Accumulation Point (SAP).**

- a) True
- b) False

**15. Before hazardous waste is removed from your storage area, the Hazardous Waste Management Facility (HWMF) must ensure that they have sufficient information to characterize, transport and dispose of the waste.**

- a) True
- b) False

**16. If you have hazardous waste that you need to dispose of, you may simply call or e-mail the Hazardous Waste Management Facility (HWMF) (instead of using the electronic WDDR form) and they will pick up your waste.**

- a) True
- b) False

**17. Which of the following is an element of the SNL/NM Environmental Management System (EMS)?**

- a) National Environmental Policy Act (NEPA).
- b) ES&H Policy.
- c) Primary Hazard Screening/Hazards Analysis (PHS/HA).
- d) Pollution Prevention (P2).
- e) Environmental Compliance Coordinators (ECCs).
- f) They are all elements of the EMS.

**18. The SNL/NM Recycle Program recycles**

- a) White paper.
- b) Chemicals (Chemical Exchange Program).
- c) Used oil.
- d) Toner cartridges.
- e) All of the above.

**19. It is both Sandia National Labs Pollution Prevention (P2) policy and national policy that pollution should be prevented or reduced at the source, recycled in an environmentally safe manner, or as a last resort, should be disposed of in an environmentally safe manner.**

- a) True
- b) False

## **ENV112 Answer Sheet**

Directions: Circle the correct answer for each of the questions, then forward your Answer Sheet to the Course Manager (Bernice Lucero) by fax: 505-844-2748, or by mail MS0653 for scoring and course completion credit in TEDS.

**Name (Print):** \_\_\_\_\_

**Phone Number:** \_\_\_\_\_

**Email Address:** \_\_\_\_\_

**Project/Task:** \_\_\_\_\_

**Company:** \_\_\_\_\_

**Date:** \_\_\_\_\_

### **Questions**

1.    a        b        c        d
2.    a        b        c        d
3.    a        b        c        d
4.    a        b        c        d
5.    a        b        c        d        e
6.    a        b
7.    a        b
8.    a        b        c        d
9.    a        b
10.   a        b        c        d
11.   a        b        c
12.   a        b        c        d
13.   a        b        c        d        e
14.   a        b
15.   a        b
16.   a        b
17.   a        b        c        d        e        f
18.   a        b        c        d        e
19.   a        b

## ENV112 Feedback Form

Customer feedback is important to us. Please complete the evaluation form below and forward it to Bernice Lucero at MS 0653, or fax to 505-844-2748.

Rate on a scale of 1- 5 (with 1= poor and 5 =excellent):

- |  |   |   |   |   |   |
|--|---|---|---|---|---|
| • The ease of using of this learning tool and/or test?   | 1 | 2 | 3 | 4 | 5 |
| • The organization of information presented?   | 1 | 2 | 3 | 4 | 5 |
| • The amount of information presented?   | 1 | 2 | 3 | 4 | 5 |
| • The usefulness of the information presented?   | 1 | 2 | 3 | 4 | 5 |
| • Your level of knowledge related to this topic<br><b>BEFORE</b> using this learning tool and/or test? | 1 | 2 | 3 | 4 | 5 |
| • Your level of knowledge related to this topic<br><b>AFTER</b> using this learning tool and/or test?  | 1 | 2 | 3 | 4 | 5 |
| • The overall quality of this learning tool and/or test?   | 1 | 2 | 3 | 4 | 5 |

Fill in the blanks:

What was most valuable about this learning tool or test?

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What information needs to be corrected, inserted, removed, or updated?

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What could be done to improve or enhance this learning tool or test?

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